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$$= \frac{4r(a+b)n \sin \frac{\pi}{2n} - r^2(2\pi + 2n \sin \frac{\pi}{n})}{\pi ab}$$

$$\text{If } n=2, p = \frac{4r(a+b)\sqrt{2} - r^2(2\pi + 4)}{\pi ab}.$$

Let  $l = 4rn \sin \frac{\pi}{2n}$  be the perimeter of the polygon.

$$\text{Then } p = \frac{(a+b)l - 2\pi r^2 - rl \cos \frac{\pi}{2n}}{\pi ab}.$$

Let  $b$  be infinite.

Then  $p = \frac{l}{\pi a} = \frac{l}{l'}$ , where  $l'$  is the perimeter of the circle having  $a$  for its diameter.

Excellent solutions were received from *Professors Matz and Draughon*. Their solutions may appear in January Number.

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## PROBLEMS.

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22. Proposed by ALTON L. SMITH, Instructor in Drawing, Polytechnic Institute, Worcester, Mass.

In a series of counts of the votes on a legislative act relative to the city of Worcester, the following results were obtained:

	YES.	NO.
1st count	5566	5511
2nd "	5519	5558
3d "	5546	5517
4th "	5512	5551
5th "	5512	5541

What is the probability that the last count (5th) is correct?

23. Proposed by F. P. MATZ, M. Sc., Ph. D., Professor of Mathematics and Astronomy in New Windsor College, New Windsor, Maryland.

Find the average area of all the triangles that can be drawn *perpendicular-sided* to a given plane scalene triangle.

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## EDITORIALS.

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AN exhaustive solution to problem 33, Arithmetic Department, was received from A. H. Bell, but too late for credit in the proper place.

D. G. DURRANCE should have been credited with solving problem 32, Arithmetic Department.

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